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VIC5211M/VIC5211R SERIES – FIBER OPTIC VIDEO INTERCOM SYSTEM ENGINEERING SPECIFICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Fiber Optic Video Intercom System with Video, Contact Closure and Bi-directional Audio

1.02 SECTION INCLUDES

A. VIC5211M/VIC5211R Series Video Transmitter/Receiver, Contact Closure Transmitter and Receiver and Audio Transceiver – Standalone

B. VIC5211M - R3 Series Video Transmitter, Contact Closure Receiver and Audio Transceiver - Rack Mount

1.03 REFERENCES

A. Underwriters Laboratory (UL)

B. Underwriters Laboratory Canada (ULC)

C. European Union Compliance (CE)

1.04 SYSTEM DESCRIPTION

A. Performance Requirements: Provide a Video Transmitter/Receiver and integrated Contact Closer Transmitter/Receiver and audio transceiver system.

1. The system shall utilize integrated WDM optics operating at 850/1300nm capable of simultaneous video, contact closure and audio transmission on one multimode optical fiber. (VIC5211M/VIC5211R)

1.05 SUBMITTALS

A. Product Data: Manufacturer's printed product data sheet for each type of Transmitter/Receiver specified.

B. Detail Drawings: Electrical and optical connect drawings. Product mounting template.

C. Manufacturer's Installation and Operating Manual: Printed installation and operating information for each type of Transmitter/Receiver specified.

D. Test Reports: Manufacturer's Printed Test Report via a Tektronics VM700A Video Test Generator verifying product performance meets or exceeds the specified product performance referenced in Part 2.

E. Warranty: Manufacturer's Printed Warranty

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in unopened factory packaging with Manufacturer's bar coding to the job site.

B. Inspect product upon delivery to assure that specified products have been received.

C. Store in original packaging in a climate controlled environment. Storage Temperature not to exceed: -40˚ C to +85˚ C

1.07 PROJECT/SITE CONDITIONS

A. Temperature Requirements: Products shall operate in an environment with an ambient temperature range of –40˚ C to +74˚ C without the assistance of fan-forced cooling.

B. Humidity Requirements: Products shall operate in an environment with relative humidity of 0% to 95% (non-condensing). If product is installed in condensation conditions, unit shall have conformal coating applied to the printed circuit board.

1.08 WARRANTY

A. Standard International Fiber Systems Comprehensive Lifetime Warranty: IFS warrants the product to be free of factory defects under manufacture's Lifetime Warranty as submitted under article 1.05 (E)

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Acceptable Manufacturer: International Fiber Systems, Inc.; 16 Commerce Road, Newtown, CT 06470 USA; Telephone: 203-426-1180; Fax 203-426-3326; Email: sales@ifs.com; Internet: www.ifs.com

B. Substitutions: Not Permitted

C. All fiber optic modules shall be supplied from a single manufacturer.

2.02 MANUFACTURED UNITS

A. Model Number Descriptions: Reference Table A: Product Number Descriptions

B. Model Compatibility Chart: Reference Table B: Product Compatibility Chart

2.03 GENERAL SPECIFICATIONS

A. The Video Transmitter/Receiver and integrated contact closure transmitter/receiver and audio transceiver system shall be an IFS VIC5211M/ VIC5211R series. The module shall be capable of transmitting full color video in real time in NTSC, PAL or SECAM formats. The module shall support the transmission of simplex or duplex audio as well as a return contact closure. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall transmit the video, contact closure and audio signals using frequency modulation of the optical signal. The simultaneous video, contact closure and audio transmission shall utilize an integrated WDM for increased stability and reliability of system performance. The module shall provide power and carrier detect status indicating LED's for monitoring proper system operation. The modules shall provide automatic re-settable solid-state current limiters and independent voltage regulators on each module to reduce the chance of a single point failure of the system. The module shall be hot swappable in a rack mount system to reduce complete system shut down during maintenance or repair. The module shall have an MTBF of >100,000 hours and operate in an environment of –40˚ C to +74˚ C and relative humidity between 0% to 95% (non-condensing). The module shall be UL and ULC listed and CE marked. The circuit board shall be UL 94 flame rated and meet all PCI standards.

All PC boards shall be designated with part number, PC board number and show appropriate revision number. Housing shall be of all metal construction. All LED indicators and both electrical and mechanical connections shall be identified with silk-screened labels. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

2.04 VIDEO SPECIFICATIONS

A. Input Video: 1 volt pk-pk (75 ohms)
B. Bandwidth: 5 Hz – 6 MHz
C. Differential Gain: < 5 %.
D. Differential Phase: < 5°.
E. Tilt: <1%
F. Signal/Noise Ratio: 60dB

2.05 CONTACT CLOSURE SPECIFICATIONS

A. Audio In/Out: 3 watts (8 – 20 ohms)
B. Relay Rating: 0.5 amps; normally open (N.O.)

2.05(B) AUDIO SPECIFICATIONS

C. Input/Output: 2.2 volts peak – to - peak
D. Bandwidth: 5 Hz – 6 MHz

2.06 OPTICAL SPECIFICATIONS

A. IFS Model Number VIC5211M/VIC5211R
   1. Optical Fiber: 62.5 /125 micron Multimode
   2. Number of Fibers Required: 1
   3. Optical Wavelength: 850nm/1300nm
   4. WDM: Integrated WDM
   5. Optical Emitter Type: VT 850nm Led
      VR 1300nm Led
   6. Transmitter Output Power: 25µw (-16 dB)
   7. Optical Detector Type: VT 1300nm PIN
      VR 850nm PIN
   8. Receiver Sensitivity: 1µw (-30 dB)
   9. Optical Power Budget: 14 dB
   10. Optical Attenuation: No manual adjustments required

2.07 STATUS INDICATORS

A. Power: On/Red – Off/Off
B. Carrier Detect: Video Carrier Active/Yellow – No Video Carrier/Off

2.08 CONNECTORS

A. Optical: ST
B. Power, Contact Closure and Audio: Terminal Block with Screw Clamps
C. Video: BNC (Gold Plated Center-PIN)

2.09 ELECTRICAL SPECIFICATIONS

A. Power: VIC5211M: 24 VAC CT
   VIC5211R: 18 VAC
B. Current Protection: Automatic re-settable solid-state current limiters
C. Voltage Regulation: Solid-state, Independent on each board
D. Circuit Board: UL 94 flame rated and meets all PCI standards.
E. Rack mount Card: Shall be hot-swappable with IFS Model Number R3 (EIA 19" card cage)

2.10 MECHANICAL SPECIFICATIONS

A. Surface Mount Dimensions:
   VIC5211M: 7.1" x 4.9" x 2.0" (18.00 cm x 12.45 cm x 5.08 cm)
   VIC5211R: 10.8" x 5.7" x 1.0" (27.18 cm x 14.48 cm x 2.54 cm)
B. Rack Mount Dimensions:
   VIC5211M ONLY: 7.7" x 5.0" x 2.0" (19.56 cm x 12.7 cm x 5.08 cm)
C. Number of Rack Slots: 2
D. Finish: Module shall be constructed of a metal enclosure with a powder coat finish model Number F63B12 with all connections and indicators silk-screened directly on unit. Rack mount units shall be constructed of anodized aluminum.
E. Weight: <2.0 lbs./1.0kg

2.11 ENVIRONMENTAL SPECIFICATIONS

A. MTBF: >100,000 Hours
B. Operating Temp: –40˚ C to +74˚ C
C. Storage Temp: -40˚ C to +85˚ C
D. Relative Humidity: 0% to 95% (non-condensing). If product is installed under condensation conditions, unit shall have conformal coating applied to the printed circuit board. (Add –C to model number for conformal coated printed circuit board)

2.12 REGULATORY AGENCIES/APPROVALS AND LISTINGS

A. Underwriters Laboratory (UL) Listing Number: I.T.E. 6D16
B. Underwriters Laboratory Canada (ULC) Listing Number: I.T.E. 6D16
C. UL 94-flame rated PCB board: 94VO
D. Conformity for Europe (CE)

2.13 ACCESSORIES

A. Card Cage: IFS Model Number R3 (EIA 19" card cage) shall be available to house and power rack mount modules.
B. Blank Panels: IFS Model Number R3-BP shall be available to cover unused rack slots.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Inspect modules before installation.
B. Modules shall be free of any cosmetic defects or damage.
C. All optical connectors shall be covered with dust caps and remain on the module until installing cable connectors to module.
D. Shipping box shall include the module, power supply and operations manual.

3.02 PREPARATION

A. Standalone Module (Surface Mount)
   1. Shall be mounted on a properly prepared surface adequate for the size and weight of module. The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings and in compliance with the IFS mounting template and installation manual.
B. Rack Mount Module (19" Rack)
   1. Shall be installed in the IFS Model Number R3 card cage. Ensure the card cage is

installed in a standard EIA 19" (482.6 mm) rack or wall standoff bracket adequate for the size and weight of the card cage. The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings and in compliance with the IFS installation manual.

C. Optical Fibers
   1. Caution: NEVER look into the end of an active optical fiber when using laser light output. Eye damage can occur. Wear eye protection when cleaving, terminating, and splicing fiber.
   2. The number and type (multimode or single-mode) of optical fiber shall meet the requirements of the IFS model number in article 2.06 used in the installation.
   3. All optical fiber cables shall be properly installed and terminated with the mating optical connectors as submitted in article 2.08 (A).
   4. The optical link shall be tested with either a power meter, at a minimum, or OTDR to ensure the link budget (overall path loss) plus an added 3dB of optical safety margin does not exceed the optical power budget as submitted in article 2.06.
   5. All optical connectors on cable shall be cleaned in compliance to optical connector manufactures specifications and covered with dust caps until connection to the fiber optic module.

3.03 INSTALLATION

A. General: Locate fiber optic modules as indicated on the approved detail drawings and install module in compliance with the IFS installation and operations manual.

3.04 TESTING

A. Testing the Fiber Optic Video Link.
   1. Verify that the coax and optic fibers are properly connected.
   2. Make sure that power is applied to all fiber optic modules, camera, and video monitor or other equipment used in the system.
   3. The carrier detect indicator LED should be lit confirming a presence of a carrier signal.
   4. Successful video link operation should be visible at this point as witnessed by a good quality video picture on the monitor.

B. Testing the Fiber Optic Audio Link
   1. Verify that the audio leads and optical fibers are properly connected.
   2. Make sure that power is applied to all fiber optic modules, Pre-amplifiers, amplifiers or other equipment used in the system.
   3. Successful audio link operation should be confirmed at this point.

C. Testing the Fiber Contact Closure Link.
   4. Verify that the contact leads and optical fibers are properly connected.
   5. Make sure that power is applied to all fiber optic modules, controllers, and receiver drivers or other equipment used in the system.
   6. Successful contact closure operation should be confirmed at this point.

3.05 CLEANING

A. Follow all instructions for proper use of solvents and adhesives used for termination and splicing.
B. At completion of the installation, dispose of all fiber scraps properly.

MANUFACTURED UNITS REFERENCE TABLES

Table A: Product Number Descriptions

VIC5211M SERIES	DESCRIPTION	MAX. DISTANCE*
VIC5211M	MM Video / Audio / Contact Closure – 850 <> Video / Audio / Contact Closure – 1300, 1 Fiber	2.5 Miles (4 KM)
VIC5211M-R3	MM Video/ Audio / Data – 850 <> Audio / Data – 1300, 1 Fiber, Rack Mount	2.5 Miles (4 KM)

* Maximum distance is limited to optical loss of the fiber and any additional loss by connectors, splices and patch panels.

VIC5211R	DESCRIPTION	MAX. DISTANCE*
VIC5211R	MM Video / Audio / Contact Closure – 1300 <> Video / Audio / Contact Closure – 850, 1 Fiber	2.5 Miles (4 KM)

Table B: Product Compatibility Chart

TRANSCEIVER	COMPATIBLE TRANSCEIVER
VIC5211M	VIC5211R
VIC5211M-R3	VIC5211R

END OF SECTION